SEQUENCE LISTING

```
FALCO, SAVERIO CARL
<110
       LI, ZHONGSEN
       S-ADENOSYL-L-METHIONINE SYNTHETASE PROMOTER AND
<120>
       ITS USE IN EXPRESSION OF TRANSGENIC GENES IN PLANTS
       BB1205 US NA
<130>
<140>
<141>
<150>
       60/11/3,045
       1998-12-21
<151>
<160>
       16
<170>
       Microsoft Office
<210>
<211>
       1518
<212>
       DNA
<213>
       Glycine max
<400>
agecaagece cacteaacca ccaccact etetetgete ttettetace ttteaagttt
                                                                     60
ttaaagtatt aagatggcag_{i_l}agacattcct atttacctca gagtcagtga acgagggaca
                                                                    120
ccctgacaag ctctgcgacc aaatctccga tgctgtcctc gacgcttgcc ttgaacagga cccagacagc aaggttgcct gcgaaacatg caccaagacc aacttggtca tggtcttcgg
                                                                    180
                                                                    240
                                                                    300
agagatcacc accaaggcca acgttgacta cgagaagatc gtgcgtgaca cctgcaggaa
                                                                    360
categgette gteteaaacg atgtgggaet tgatgetgae aactgeaagg teettgtaaa
                                                                    420
cattgagcag cagagccctg atattgccca gggtgtgcac ggccacctta ccaaaagacc
                                                                    480
cgaggaaatc ggtgctggag accagggtca catgtttggc tatgccacgg acgaaacccc
agaattgatg ccattgagtc atglitettgc aactaaactc ggtgctcgtc tcaccgaggt
                                                                    540
tcgcaagaac ggaacctgcc catggttgag gcctgatggg aaaacccaag tgactgttga
                                                                    600
                                                                    660
gtattacaat gacaacggtg ccatggttcc agttcgtgtc cacactgtgc ttatctccac
ccaacatgat gagactgtga ccaacgacga aattgcagct gacctcaagg agcatgtgat
                                                                    720
caageeggtg ateceggaga agtacettga tgagaagace attttecaet tgaaceeete
tggccgtttt gtcattggag gtcctcacgg tgatgctggt ctcaccggcc gcaagatcat
catcgatact tacggaggat ggggtgctca tggtggtggt gctttctccg ggaaggatcc 900
caccaaggtt gataggagtg gtgcttacat tgtgagacag gctgctaaga gcattgtggc
aagtggacta gccagaaggt gcattgtgca agtgtcttat gccattggtg tgcccgagcc 1020
tttqtctqtc tttqttqaca cctatggca& cgggaagatc catgataagg agattctcaa 1080
cattgtgaag gagaactttg atttcaggcc cggtatgatc tccatcaacc ttgatctcaa 1140
gaggggtggg aataacaggt tcttgaagac\tgctgcatat ggacacttcg gcagagagga 1200
ccctgacttc acatgggaag tggtcaagcc ccctaagtgg gagaaggcct aaggccattc 1260
attccactgc aatgtgctgg gagtttttta gcgttgccct tataatgtct attatccata 1320
actttccacg tcccttgctc tgtgtttttc tctcgtcgtc ctcctcctat tttgtttctc 1380
ctgcctttca tttgtaattt tttacatgat caactaaaaa atgtactctc tgttttccga 1440
aaaaaaaaa aaaaaaaa
<210>
       2
<211>
       2336
<212>
       DNA
<213>
       Glycine max
```

<220> <221>

<222>

<220> <221>

<222>

unsure

unsure

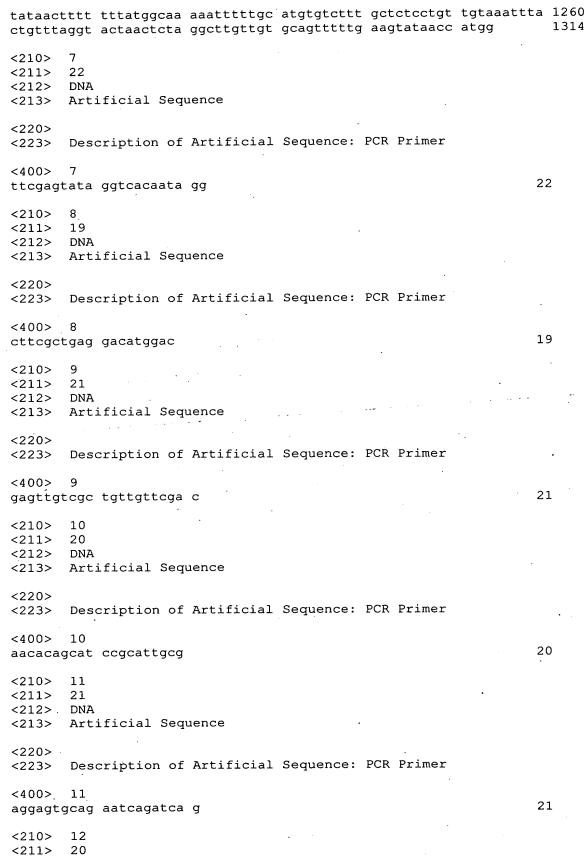
(515)

(509)

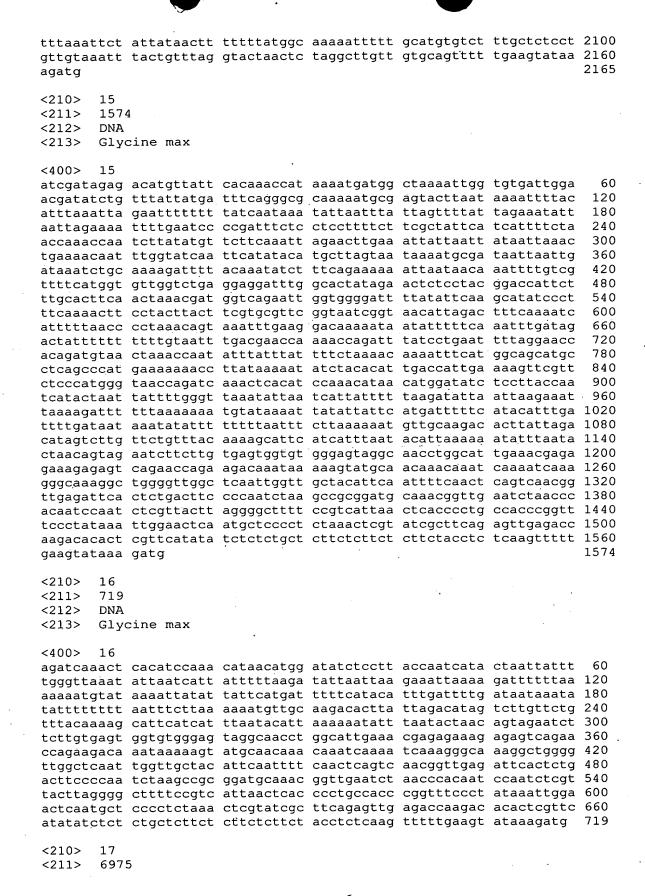
```
<400>
atcgatagag acatgttatt cacaaaccat aaaatgatgg ctaaaattgg tgtgattgga
acgatatctg tttattatga tttcagggcg caaaaatgcg agtacttaat aaaattttac
                                                                120
atttaaatta gaattttttt tatcaataaa tattaattta ttagttttat tagaaatatt
aattagaaaa ttttgaatcc ccgatttctc ctccttttct tcgctattca tcattttcta
                                                                240
                                                                300
accaaaccaa tottatatgt tottcaaatt agaacttgaa attattaatt ataattaaac
                                                                360
tgaaaacaat ttggtatcaa ttcatataca tgcttagtaa taaaatgcga taattaattg
                                                                420
ataaatctgc aaaagatttt acaaatatct ttcagaaaaa attaataaca aattttgtcg
                                                                480-
ttttcatggt gttggtctga ggaggatttg gcactataga actctcctac ggaccattct
ttgcacttca actaaacgat ggtcagaatt ggtggggatt ttatattcaa gcatatccct 540
ttcaaaactt cctacttact tcgtgcgttc ggtaatcggt aacattagac tttcaaaatc
                                                                600
                                                                660
atttttaacc cctaaacagt aaatttgaag gacaaaaata atatttttca aatttgatag
                                                                720
actatttttt ttttgtaatt tgacgaacca aaaccagatt tatcctgaat tttaggaacc
                                                                780
acagatgtaa ctaaaccaat atttatttat tttctaaaac aaaatttcat ggcagcatgc
                                                                840
ctcaqcccat qaaaaaaacc ttataaaaat atctacacat tgaccattga aaagttcgtt
ctcccatggg taaccagatc aaactcacat ccaaacataa catggatatc tccttaccaa
                                                                900
tcatactaat tattttgggt taaatattaa tcattatttt taagatatta attaagaaat
                                                                960
taaaagattt tttaaaaaaa tgtataaaat tatattattc atgatttttc atacatttga 1020
ttttgataat aaatatattt tttttaattt cttaaaaaat gttgcaagac acttattaga 1080
catagtottg ttotgtttac aaaagcattc atcatttaat acattaaaaa atatttaata 1140
ctaacagtag aatcttcttg tgagtggtgt gggagtaggc aacctggcat tgaaacgaga 1200
gaaagagagt cagaaccaga agacaaataa aaagtatgca acaaacaaat caaaatcaaa 1260
gggcaaaggc tggggttggc tcaattggtt gctacattca attttcaact cagtcaacgg 1320
ttgagattca ctctgacttc cccaatctaa gccgcggatg caaacggttg aatctaaccc 1380
acaatccaat ctcgttactt aggggctttt ccgtcattaa ctcacccctg ccacccggtt 1440
tccctataaa ttggaactca atgctcccct ctaaactcgt atcgcttcag agttgagacc 1500
tttcttctcc ctctaccaaa tcctagattc cgtggttcaa tttcggatct tgcacttctg 1620
gtttgctttg ccttgctttt tcctcaactg ggtccatcta ggatccatgt gaaactctac 1680
tetteettta atatetgegg aataegegtt ggaettteag atetagtega aateatttea 1740
taattgcctt tctttctttt agcttatgag aaataaaatc atttttttt atttcaaaat 1800
aaaccttggg ccttgtgctg actgagatgg ggtttggtga ttacagaatt ttagcgaatt 1860
taggetteaa ttttattega gtataggtea caataggaat teaaaetttg ageaggggaa 1980
ttaatccctt ccttcaaatc cagtttgttt gtatatatgt ttaaaaaaatg aaacttttgc 2040
tttaaattct attataactt tttttatggc aaaaattttt gcatgtgtct ttgctctcct 2100
gttgtaaatt tactgtttag gtactaactc taggcttgtt gtgcagtttt tgaagtataa 2160
agatggcaga gacattecta tteacetegg agteagtgaa egagggacae eetgataage 2220
totgogacca aatotoogat gotgtootog acgottgoot ogaacaggac coagacagca 2280
aggttqcctg cgaaacatgc accaagacca acttggtcat ggtcttcgga gagatc
                                                               2336
<210>
<211>
      522
<212>
      DNA
<213>
      Glycine max
<220>
<221>
      unsure
<222>
       (405)
```

<400>

```
gaccaagaca cactegttea tatatetete tgetettete ttetetteta ceteteaagt 60
ttttgaagta taaagatggc agagacattc ctattcacct cggagtcagt gaacgaggga 120
caccetgata agetetgega ecaaatetee gatgetgtee tegacgettg cetegaacag 180
gacccagaca gcaaggttgc ctgcgaaaca tgcaccaaga ccaacttggt catggtcttc 240
ggagagatca ccaccaaggc caacgttgac tacgagaaga tcgtgcgtga cacctgcagg 300
agcatcggct tcatctcaaa cgatgtggga cttgatgctg acaactgcaa ggtccttgta 360
aacattgagc agcagagccc tgatattgcc cagggcgtgc acggncacct taccaaaaga 420
cctgaagaaa ttggcgctgg tgaccaaggt cacatgtttg gctatgccac tgatgaaacc 480
ccaaaattca tgccattgag tcatgttcnt gcaancaagc tc
<210>
<211>
       32
<212>
       DNA
<213>
       Artificial Sequence
<220>
<223>
       Description of Artificial Sequence: PCR Primer
<400>
catgccatgg ctttatactt caaaaactgc ac
                                                                 32
<210>
<211>
       24
<212>
       DNA
<213>
       Artificial Sequence
<220>
       Description of Artificial Sequence: PCR Primer
<223>
       5
<400>
gctctagatc aaactcacat ccaa
                                                                 24
<210>
<211>
       1314
<212>
       DNA
<213>
       Glycine max
<400>
totagatoaa actoacatoo aaacataaca tggatatoto ottaccaato atactaatta
                                                                     60
                                                                    120
ttttgggtta aatattaatc attattttta agatattaat taagaaatta aaagattttt
                                                                    1.80
taaaaaaatq tataaaatta tattattcat gatttttcat acatttgatt ttgataataa
atatatttt tttaatttct taaaaaatgt tgcaagacac ttattagaca tagtcttgtt
                                                                    240
ctgtttacaa aagcattcat catttaatac attaaaaaat atttaatact aacagtagaa
                                                                    300
tcttcttgtg agtggtgtgg gagtaggcaa cctggcattg aaacgagaga aagagagtca
                                                                    360
qaaccagaag acaaataaaa agtatgcaac aaacaaatca aaatcaaagg gcaaaggctg
                                                                    420
gggttggctc aattggttgc tacattcaat tttcaactca gtcaacggtt gagattcact
                                                                    480
ctgacttccc caatctaagc cgcggatgca aacggttgaa tctaacccac aatccaatct
                                                                    540
cgttacttag gggcttttcc gtcattaact cacccctgcc acccggtttc cctataaatt
                                                                    600
ggaactcaat gctcccctct aaactcgtat cgcttcagag ttgagaccaa gacacactcg
ttcatatatc tctctgctct tctcttctct tctacctctc aaggtacttt tcttctccct
                                                                    720.
ctaccaaatc ctagattccg tggttcaatt tcggatcttg cacttctggt ttgctttgcc
                                                                    780
ttgctttttc ctcaactggg tccatctagg atccatgtga aactctactc tttctttaat
atctgcggaa tacgcgttgg actttcagat ctagtcgaaa tcatttcata attgcctttc
tttcttttag cttatgagaa ataaaatcat tttttttat ttcaaaataa accttgggcc
ttgtgctgac tgagatgggg tttggtgatt acagaatttt agcgaatttt gtaattgtac 1020
ttgtttgtct gtagttttgt tttgttttct tgtttctcat acattcctta ggcttcaatt 1080
ttattcgagt ataggtcaca ataggaattc aaactttgag caggggaatt aatcccttcc 1140
ttcaaatcca gtttgtttgt atatatgttt aaaaaatgaa acttttgctt taaattctat 1200
```

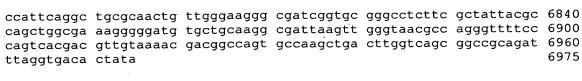


```
<212>
      DNA
<213>
      Artificial Sequence
<220>
      Description of Artificial Sequence: PCR Primer
<223>
<400>
      12
                                                             20
gctgatcgaa ccagatggag
<210>
      13
<211>
       23
<212>
<213>
      Artificial Sequence
<220>
<223>
       Description of Artificial Sequence: PCR Primer
<400>
      13
ctgtacagtt aaacagtagt tct
                                                             23
      14
<210>
<211>
      2165
<212>
      DNA
<213>
      Glycine max
<400>
                                                                 60
atcgatagag acatgttatt cacaaaccat aaaatgatgg ctaaaattgg tgtgattgga
acgatatctg tttattatga tttcagggcg caaaaatgcg agtacttaat aaaattttac
                                                                120
atttaaatta gaatttttt tatcaataaa tattaattta ttagttttat tagaaatatt
                                                                180
aattagaaaa ttttgaatcc ccgatttctc ctccttttct tcgctattca tcattttcta
                                                                240
accaaaccaa tottatatgt tottoaaatt agaacttgaa attattaatt ataattaaac
                                                                300
tqaaaacaat ttggtatcaa ttcatataca tgcttagtaa taaaatgcga taattaattg
                                                                360
ataaatctgc aaaagatttt acaaatatct ttcagaaaaa attaataaca aattttgtcg
                                                                420
ttttcatggt gttggtctga ggaggatttg gcactataga actctcctac ggaccattct
                                                                480
ttgcacttca actaaacgat ggtcagaatt ggtggggatt ttatattcaa gcatatccct
                                                                540
ttcaaaactt cctacttact tcgtgcgttc ggtaatcggt aacattagac tttcaaaatc
                                                                600
                                                                660
atttttaacc cctaaacagt aaatttgaag gacaaaaata atatttttca aatttgatag
                                                                720
actatttttt ttttgtaatt tgacgaacca aaaccagatt tatcctgaat tttaggaacc
                                                                780
acagatgtaa ctaaaccaat atttatttat tttctaaaac aaaatttcat ggcagcatgc
                                                                840
ctcaqcccat qaaaaaaacc ttataaaaat atctacacat tgaccattga aaagttcgtt
                                                                900
ctcccatggg taaccagatc aaactcacat ccaaacataa catggatatc tccttaccaa
tcatactaat tattttgggt taaatattaa tcattatttt taagatatta attaagaaat
taaaagattt tttaaaaaaa tgtataaaat tatattattc atgatttttc atacatttga 1020
ttttgataat aaatatattt tttttaattt cttaaaaaaat gttgcaagac acttattaga 1080
catagtettg ttetgtttae aaaageatte ateatttaat acattaaaaa atatttaata 1140
ctaacagtag aatcttcttg tgagtggtgt gggagtaggc aacctggcat tgaaacgaga 1200
qaaaqaqagt cagaaccaga agacaaataa aaagtatgca acaaacaaat caaaatcaaa 1260
gggcaaaggc tggggttggc tcaattggtt gctacattca attttcaact cagtcaacgg 1320
ttgagattca ctctgacttc cccaatctaa gccgcggatg caaacggttg aatctaaccc 1380
acaatccaat ctcgttactt aggggctttt ccgtcattaa ctcacccctg ccacccggtt 1440
tccctataaa ttggaactca atgctcccct ctaaactcgt atcgcttcag agttgagacc 1500
tttcttctcc ctctaccaaa tcctagattc cgtggttcaa tttcggatct tgcacttctg 1620
gtttgctttg ccttgctttt tcctcaactg ggtccatcta ggatccatgt gaaactctac 1680
tetttettta atatetgegg aataegegtt ggaettteag atetagtega aateatttea 1740
taattgcctt tctttctttt agcttatgag aaataaaatc atttttttt atttcaaaat 1800
aaaccttggg ccttgtgctg actgagatgg ggtttggtga ttacagaatt ttagcgaatt 1860
taggetteaa ttttattega gtataggtea caataggaat teaaaetttg ageaggggaa 1980
ttaatccctt ccttcaaatc cagtttgttt gtatatatgt ttaaaaaaatg aaacttttgc 2040
```



```
<212>
       DNA
<213>
      Artificial Sequence
<220>
       Description of Artificial Sequence:plasmid
<223>
<400>
       17
                                                                     60
gaatatgcat cactagtaag ctttgctcta gaggatccaa ttccaatccc acaaaaatct
                                                                   120 .
qaqcttaaca gcacagttgc tcctctcaga gcagaatcgg gtattcaaca ccctcatatc
                                                                   180
aactactacg ttgtgtataa cggtccacat gccggtatat acgatgactg gggttgtaca
aaggcggcaa caaacggcgt tcccggagtt gcacacaaga aatttgccac tattacagag
                                                                   240
gcaagagcag cagctgacgc gtacacaaca agtcagcaaa cagacaggtt gaacttcatc
                                                                    300
cccaaaggag aagctcaact caagcccaag agctttgcta aggccctaac aagcccacca
                                                                    360
aagcaaaaag cccactggct cacgctagga accaaaaggc ccagcagtga tccagccca
                                                                    420
aaagagatct cctttgcccc ggagattaca atggacgatt tcctctatct ttacgatcta
                                                                    480
ggaaggaagt tcgaaggtga aggtgacgac actatgttca ccactgataa tgagaaggtt
                                                                    540
aqcctcttca atttcagaaa gaatgctgac ccacagatgg ttagagaggc ctacgcagca
                                                                    600
ggtctcatca agacgatcta cccgagtaac aatctccagg agatcaaata ccttcccaag
                                                                    660
aaggttaaag atgcagtcaa aagattcagg actaattgca tcaagaacac agagaaagac
                                                                   720 -
atatttctca agatcagaag tactattcca gtatggacga ttcaaggctt gcttcataaa
                                                                    780
ccaaggcaag taatagagat tggagtctct aaaaaggtag ttcctactga atctaaggcc
                                                                    840
atgcatggag tctaagattc aaatcgagga tctaacagaa ctcgccgtga agactggcga
                                                                    900
acagttcata cagagtcttt tacgactcaa tgacaagaag aaaatcttcg tcaacatggt
ggagcacgac actctggtct actccaaaaa tgtcaaagat acagtctcag aagaccaaag 1020
ggctattgag acttttcaac aaaggataat ttcgggaaac ctcctcggat tccattgccc 1080
agctatctgt cacttcatcg aaaggacagt agaaaaggaa ggtggctcct acaaatgcca 1140
tcattgcgat aaaggaaagg ctatcattca agatgcctct gccgacagtg gtcccaaaga 1200
tggacccca cccacgagga gcatcgtgga aaaagaagac gttccaacca cgtcttcaaa 1260
qcaaqtqqat tgatqtqaca tctccactga cgtaagggat gacgcacaat cccactatcc 1320
ttcqcaaqac ccttcctcta tataaggaag ttcatttcat ttggagagga cacgctcgag 1380
ctcatttctc tattacttca gccataacaa aagaactctt ttctcttctt attaaaccat 1440
ggtacgtcct gtagaaaccc caacccgtga aatcaaaaaa ctcgacggcc tgtgggcatt 1500
cagtctggat cgcgaaaact gtggaattga tcagcgttgg tgggaaagcg cgttacaaga 1560
aagccgggca attgctgtgc caggcagttt taacgatcag ttcgccgatg cagatattcg 1620
taattatgcg ggcaacgtct ggtatcagcg cgaagtcttt ataccgaaag gttgggcagg 1680
ccagcqtatc gtgctgcgtt tcgatgcggt cactcattac ggcaaagtgt gggtcaataa 1740
tcaggaagtg atggagcatc agggcggcta tacgccattt gaagccgatg tcacgccgta 1800
tqttattqcc qqqaaaaqtq tacqtatcac cgtttgtgtg aacaacgaac tgaactggca 1860
gactateceg eegggaatgg tgattaeega egaaaaegge aagaaaaage agtettaett 1920
ccatgatttc tttaactatg ccggaatcca tcgcagcgta atgctctaca ccacgccgaa 1980
cacctgggtg gacgatatca ccgtggtgac gcatgtcgcg caagactgta accacgcgtc 2040
tgttgactgg caggtggtgg ccaatggtga tgtcagcgtt gaactgcgtg atgcggatca 2100
acaggtggtt gcaactggac aaggcactag cgggactttg caagtggtga atccgcacct 2160
ctggcaaccg ggtgaaggtt atctctatga actgtgcgtc acagccaaaa gccagacaga 2220
gtátgatate taccegette gegteggeat eeggteagtg geagtgaagg gecaacagtt 2280
cctgattaac cacaaaccgt tctactttac tggctttggt cgtcatgaag atgcggactt 2340
acgtggcaaa ggattcgata acgtgctgat ggtgcacgac cacgcattaa tggactggat 2400
tggggccaac tcctaccgta cctcgcatta cccttacgct gaagagatgc tcgactgggc 2460
agatgaacat ggcatcgtgg tgattgatga aactgctgct gtcggcttta acctctcttt 2520
aggcattggt ttcgaagcgg gcaacaagcc gaaagaactg tacagcgaag aggcagtcaa 2580
cggggaaact cagcaagcgc acttacaggc gattaaagag ctgatagcgc gtgacaaaaa 2640
ccacccaage gtggtgatgt ggagtattge caacgaaceg gataccegte egcaagtgea 2700
cgggaatatt tcgccactgg cggaagcaac gcgtaaactc gacccgacgc gtccgatcac 2760'
ctgcgtcaat gtaatgttct gcgacgctca caccgatacc atcagcgatc tctttgatgt 2820
gctgtgcctg aaccgttatt acggatggta tgtccaaagc ggcgatttgg aaacggcaga 2880
gaaggtactg gaaaaagaac ttctggcctg gcaggagaaa ctgcatcagc cgattatcat 2940
caccgaatac ggcgtggata cgttagccgg gctgcactca atgtacaccg acatgtggag 3000
tgaagagtat cagtgtgcat ggctggatat gtatcaccgc gtctttgatc gcgtcagcgc 3060
cgtcgtcggt gaacaggtat ggaatttcgc cgattttgcg acctcgcaag gcatattgcg 3120
cgttggcggt aacaagaaag ggatcttcac tcgcgaccgc aaaccgaagt cggcggcttt 3180
```

tctgctgcaa aaacgctgga ctggcatgaa cttcggtgaa aaaccgcagc agggaggcaa 3240 acaatgaatc aacaactete etggegeace ategtegget acageetegg tggggaatte 3300 cccgggggta cctaatagtg agatccaaca cttacgtttg caacgtccaa gagcaaatag 3360 accacgnacg ccggaaggtt gccgcagcgt gtggattgcg tctcaattct ctcttgcagg 3420 aatgcaatga tgaatatgat actgactatg aaactttgag ggaatactgc ctagcaccgt 3480 cacctcataa cgtgcatcat gcatgccctg acaacatgga acatcgctat ttttctgaag 3540 aattatgctc gttggaggat gtcgcggcaa ttgcagctat tgccaacatc gaactacccc 3600 tcacgcatgc attcatcaat attattcatg cggggaaagg caagattaat ccaactggca 3660 aatcatccag cgtgattggt aacttcagtt ccagcgactt gattcgtttt ggtgctaccc 3720 acgttttcaa taaggacgag atggtggagt aaagaaggag tgcgtcgaag cagatcgttc 3780 aaacatttgg caataaagtt tottaagatt gaatootgtt googgtottg ogatgattat 3840 catataattt ctgttgaatt acgttaagca tgtaataatt aacatgtaat gcatgacgtt 3900 atttatgaga tgggttttta tgattagagt cccgcaatta tacatttaat acgcgataga 3960 aaacaaaata tagcgcgcaa actaggataa attatcgcgc gcggtgtcat ctatgttact 4020 agatcgatca aacttcggta ctgtgtaatg acgatgagca atcgagaggc tgactaacaa 4080 aaggtacatc ggtcgacgag ctccctatag tgagtcgtat tagaggccga cttggccaaa 4140 ttegtaatea tggteatage tgttteetgt gtgaaattgt tateegetea caatteeaca 4200 caacatacqa qccqqaaqca taaaqtqtaa aqcctqgggt gcctaatgag tgagctaact 4260 cacattaatt gcgttgcgct cactgcccgc tttccagtcg ggaaacctgt cgtgccagct 4320 gcattaatga atcggccaac gcgcggggag aggcggtttg cgtattgggc gctcttccgc 4380 ttcctcqctc actqactcgc tgcgctcggt cgttcggctg cggcgagcgg tatcagctca 4440 ctcaaaggcg gtaatacggt tatccacaga atcaggggat aacgcaggaa agaacatgtg 4500 agcaaaaggc cagcaaaagg ccaggaaccg taaaaaggcc gcgttgctgg cgtttttcca 4560 taggeteege eeecetgaeg ageateacaa aaategaege teaagteaga ggtggegaaa 4620 cccgacagga ctataaagat accaggcgtt tccccctgga agctccctcg tgcgctctcc 4680 tgttccgacc ctgccgctta ccggatacct gtccgccttt ctcccttcgg gaagcgtggc 4740 gctttctcat agctcacgct gtaggtatct cagttcggtg taggtcgttc gctccaagct 4800 gggctgtgtg cacgaaccc ccgttcagcc cgaccgctgc gccttatccg gtaactatcg 4860 tettgagtee aacceggtaa gacacgactt ategecactg geageageea etggtaacag 4920 gattagcaga gcgaggtatg taggcggtgc tacagagttc ttgaagtggt ggcctaacta 4980 cggctacact agaaggacag tatttggtat ctgcgctctg ctgaagccag ttaccttcgg 5040 aaaaagagtt ggtagctctt gatccggcaa acaaaccacc gctggtagcg gtggttttt 5100 tgtttgcaag cagcagatta cgcgcagaaa aaaaggatct caagaagatc ctttgatctt 5160 ttctacgggg tctgacgctc agtggaacga aaactcacgt taagggattt tggtcatgag 5220 attatcaaaa aggatcttca cctagatcct tttaaattaa aaatgaagtt ttaaatcaat 5280 ctaaagtata tatgagtaaa cttggtctga cagttaccaa tgcttaatca gtgaggcacc 5340 tatctcagcg atctgtctat ttcgttcatc catagttgcc tgactccccg tcgtgtagat 5400° aactacqata cgggagggct taccatctgg ccccagtgct gcaatgatac cgcgagaccc 5460 acgctcaccg gctccagatt tatcagcaat aaaccagcca gccggaaggg ccgagcgcag 5520 aagtggteet geaactttat eegeeteeat eeagtetatt aattgttgee gggaagetag 5580 agtaagtagt tegecagtta atagtttgeg caaegttgtt gecattgeta caggeategt 5640 ggtgtcacgc tcgtcgtttg gtatggcttc attcagctcc ggttcccaac gatcaaggcg 5700 agttacatga tececeatgt tgtgcaaaaa ageggttage teetteggte eteegategt 5760 tgtcagaagt aagttggccg cagtgttatc actcatggtt atggcagcac tgcataattc 5820 tcttactgtc atgccatccg taagatgctt ttctgtgact ggtgagtact caaccaagtc 5880° attctgagaa tagtgtatgc ggcgaccgag ttgctcttgc ccggcgtcaa tacgggataa 5940 taccqcqcca cataqcaqaa ctttaaaagt gctcatcatt ggaaaacgtt cttcggggcg 6000 aaaactctca aggatcttac cgctgttgag atccagttcg atgtaaccca ctcgtgcacc 6060 caactgatct tcagcatctt ttactttcac cagcgtttct gggtgagcaa aaacaggaag 6120 gcaaaatgcc gcaaaaaagg gaataagggc gacacggaaa tgttgaatac tcatactctt 6180 cctttttcaa tattattgaa gcatttatca gggttattgt ctcatgagcg gatacatatt 6240 tgaatgtatt tagaaaaata aacaaatagg ggttccgcgc acatttcccc gaaaagtgcc 6300 acctgacgcg ccctgtagcg gcgcattaag cgcggcgggt gtggtggtta cgcgcagcgt 6360 gaccgctaca cttgccagcg ccctagcgcc cgctcctttc gctttcttcc cttcctttct 6420 cgccacgttc gccggctttc cccgtcaagc tctaaatcgg ggcatccctt tagggttccg 6480 atttagtgct ttacggcacc tcgaccccaa aaaacttgat tagggtgatg gttcacgtag 6540 tgggccatcg ccctgataga cggtttttcg ccctttgacg ttggagtcca cgttctttaa 6600 tagtggactc ttgttccaaa ctggaacaac actcaaccct atctcggtct attcttttga 6660 tttataaggg attttgccga tttcggccta ttggttaaaa aatgagctga tttaacaaaa 6720 atttaacgcg aattttaaca aaatattaac aaaatattaa cgtttacaat ttcccattcg 6780



<210> 18 <211> 3985 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chimeric gene

```
<400>
aagetttget etagateaaa eteacateea aacataacat ggatatette ettaceaate
                                                                   60
                                                                  120 :
atactaatta ttttqqqtta aatattaatc attattttta agatattaat taagaaatta
                                                                  180
aaagattttt taaaaaaatq tataaaatta tattattcat gatttttcat acatttgatt
ttgataataa atatattttt tttaatttct taaaaaaatgt tgcaagacac ttattagaca
                                                                  240
tagtcttqtt ctqtttacaa aagcattcat catttaatac attaaaaaat atttaatact
                                                                  300
aacaqtaqaa tcttcttqtq aqtqqtqtqq gagtaggcaa cctggcattg aaacgagaga
                                                                  360
aagagagtca gaaccagaag acaaataaaa agtatgcaac aaacaaatca aaatcaaagg
                                                                  420
gcaaaggctg gggttggctc aattggttgc tacattcaat tttcaactca gtcaacqqtt
                                                                  480
gagattcact ctgacttccc caatctaagc cgcggatgca aacggttgaa tctaacccac
                                                                  540
aatccaatct cgttacttag gggcttttcc gtcattaact cacccctgcc acccggtttc
                                                                  600
cctataaatt ggaactcaat gctcccctct aaactcgtat cgcttcagag ttgagaccaa
                                                                  660
720
tcttctccct ctaccaaatc ctagattccg tggttcaatt tcggatcttg cacttctggt
                                                                  780
                                                                  840
ttgctttgcc ttgctttttc ctcaactggg tccatctagg atccatgtga aactctactc
tttctttaat atctgcggaa tacgcgttgg actttcagat ctagtcgaaa tcatttcata
                                                                  900
attgcctttc tttcttttag cttatgagaa ataaaatcac ttttttttta tttcaaaata
aaccttgggc cttgtgctga ctgagatggg gtttggtgat tacagaattt tagcgaattt 1020
tgtaattgta cttgtttgtc tgtagttttg ttttgttttc ttgtttctca tacattcctt 1080
aggetteaat tttattegag tataggteac aataggaatt caaaetttga geaggggaat 1140
taatcccttc cttcaaatcc agtttgtttg tatatatgtt taaaaaaatga aacttttgct 1200
ttaaattcta ttataacttt ttttatggct gaaatttttg catgtgtctt tgctctctgt 1260
tqtaaattta ctqtttaggt actaactcta ggcttgttgt gcagtttttg aagtataacc 1320
atggtacgtc ctgtagaaac cccaacccgt gaaatcaaaa aactcgacgg cctgtgggca 1380
ttcaqtctqq atcqcqaaaa ctqtqqaatt gatcaqcqtt ggtgggaaag cgcgttacaa 1440
gaaagccggg caattgctgt gccaggcagt tttaacgatc agttcgccga tgcagatatt 1500
cgtaattatg cgggcaacgt ctggtatcag cgcgaagtct ttataccgaa aggttgggca 1560
qgccaqcqta tcgtgctgcg tttcgatgcg gtcactcatt acggcaaagt gtgggtcaat 1620
aatcaqqaag tgatggagca tcagggcggc tatacgccat ttgaagccga tgtcacgccg 1680
tatgttattg ccgggaaaag tgtacgtatc accgtttgtg tgaacaacga actgaactgg 1740
cagactatcc cgccgggaat ggtgattacc gacgaaaacg gcaagaaaaa gcagtcttac 1800
ttccatgatt tctttaacta tgccggaatc catcgcagcg taatgctcta caccacgccg 1860
aacacctggg tggacgatat caccgtggtg acgcatgtcg cgcaagactg taaccacgcg 1920
tctgttgact ggcaggtggt ggccaatggt gatgtcagcg ttgaactgcg tgatgcggat 1980
caacaggtgg ttgcaactgg acaaggcact agcgggactt tgcaagtggt gaatccgcac 2040
ctctggcaac cgggtgaagg ttatctctat gaactgtgcg tcacagccaa aagccagaca 2100
gagtgtgata tctacccgct tcgcgtcggc atccggtcag tggcagtgaa gggccaacag 2160
ttcctgatta accacaaacc gttctacttt actggctttg gtcgtcatga agatgcggac 2220
ttacgtggca aaggattcga taacgtgctg atggtgcacg accacgcatt aatggactgg 2280
attggggcca actcctaccg tacctcgcat tacccttacg ctgaagagat gctcgactgg 2340
gcagatgaac atggcatcgt ggtgattgat gaaactgctg ctgtcggctt taacctctct 2400
ttaggcattg gtttcgaagc gggcaacaag ccgaaagaac tgtacagcga agaggcagtc 2460
aacggggaaa ctcagcaagc gcacttacag gcgattaaag agctgatagc gcgtgacaaa 2520
aaccacccaa gcgtggtgat gtggagtatt gccaacgaac cggatacccg tccgcaagtg 2580
cacgggaata tttcgccact ggcggaagca acgcgtaaac tcgacccgac gcgtccgatc 2640
acctgcgtca atgtaatgtt ctgcgacgct cacaccgata ccatcagcga tctctttgat 2700
qtqctqtqcc tqaaccqtta ttacggatgg tatgtccaaa gcggcgattt ggaaacggca 2760
```

```
gagaaggtac tggaaaaaga acttetggee tggeaggaga aactgeatea geegattate 2820
atcaccqaat acggcgtgga tacgttagcc gggctgcact caatgtacac cgacatgtgg 2880
agtgaagagt atcagtgtgc atggctggat atgtatcacc gcgtctttga tcgcgtcagc 2940
gccgtcgtcg gtgaacaggt atggaatttc gccgattttg cgacctcgca aggcatattg 3000
cgcgttggcg gtaacaagaa agggatcttc actcgcgacc gcaaaccgaa gtcggcggct 3060
tttctgctgc aaaaacgctg gactggcatg aacttcggtg aaaaaccgca gcagggaggc 3120
aaacaatgaa tcaacaacte teetggegea eeategtegg etacageete ggtggggaat 3180
tccccqqqqg tacctaatag tgagatccaa cacttacgtt tgcaacgtcc aagagcaaat 3240
agaccacgna cgccggaagg ttgccgcagc gtgtggattg cgtctcaatt ctctcttgca 3300
ggaatgcaat gatgaatatg atactgacta tgaaactttg agggaatact gcctagcacc 3360
gtcacctcat aacgtgcatc atgcatgccc tgacaacatg gaacatcgct attttctga 3420
agaattatgc tcgttggagg atgtcgcggc aattgcagct attgccaaca tcgaactacc 3480
cctcacgcat gcattcatca atattattca tgcggggaaa ggcaagatta atccaactgg 3540
caaatcatcc agcgtgattg gtaacttcag ttccagcgac ttgattcgtt ttggtgctac 3600
ccacgttttc aataaggacg agatggtgga gtaaagaagg agtgcgtcga agcagatcgt 3660
tcaaacattt ggcaataaag tttcttaaga ttgaatcctg ttgccggtct tgcgatgatt 3720
atcatataat ttctgttgaa ttacgttaag catgtaataa ttaacatgta atgcatgacg 3780
ttatttatga gatgggtttt tatgattaga gtcccgcaat tatacattta atacgcgata 3840
gaaaacaaaa tatagcgcgc aaactaggat aaattatcgc gcgcggtgtc atctatgtta 3900
ctagatcgat caaacttcgg tactgtgtaa tgacgatgag caatcgagag gctgactaac 3960
aaaaggtaca tcggtcgacg agctc
                                                                  3985
```

```
<210> 19
<211> 3684
<212> DNA
```

<213> Artificial Sequence

<220> <223>

Description of Artificial Sequence: chimeric gene

```
19
<400>
aagetttget etagateaaa eteacateea aacataacat ggatatette ettaceaate
                                                                  60
atactaatta ttttgggtta aatattaatc attattttta agatattaat taagaaatta
                                                                 120
aaagattttt taaaaaaatg tataaaatta tattattcat gatttttcat acatttgatt
                                                                 180
ttgataatáa atatatttt tttaatttct taaaaaatgt tgcaagacac ttattagaca
                                                                 240
tagtcttqtt ctqtttacaa aagcattcat catttaatac attaaaaaat atttaatact
                                                                 300
aacagtagaa tottottgtg agtggtgtgg gagtaggcaa cotggcattg aaacgagaga
                                                                 360
aaqaqaqtca qaaccaqaaq acaaataaaa aqtatqcaac aaacaaatca aaatcaaagg
                                                                 420
gcaaaggctg gggttggctc aattggttgc tacattcaat tttcaactca gtcaacggtt
                                                                 480
gagattcact ctgacttccc caatctaagc cgcggatgca aacggttgaa tctaacccac
                                                                 540
aatccaatct cgttacttag gggcttttcc gtcattaact cacccctgcc acccggtttc
                                                                 600
cctataaatt ggaactcaat gctcccctct aaactcgtat cgcttcagag ttgagaccaa
                                                                 660
720
tetteteet etaceaaate etagatteeg tggtteaatt teggatettg eacttetggt
                                                                 780
ttgctttgcc ttgctttttc ctcaactggg tccatctagg atccatgtga aactctactc
                                                                 840
tttctttaat atctgcggaa tacgcgttgg actttcagat ctagtcgaaa tcatttcata
                                                                 900
attgcctttc tttcttttag cttatgagaa ataaaatcac tttttttta tttcaaaata
aaccttgggc cttgtgctga ctgagatggg gtttggtgat tacagaattt tagcgaattt 1020
tgtaattgta cttgtttgtc tgtagttttg ttttgttttc ttgtttctca tacattcctt 1080
aggetteaat tttattegag tataggteac aataggaatt caaaetttga geaggggaat 1140
taatcccttc cttcaaatcc agtttgtttg tatatatgtt taaaaaatga aacttttgct 1200
ttaaattcta ttataacttt ttttatggct gaaatttttg catgtgtctt tgctctctgt 1260
tgtaaattta ctgtttaggt actaactcta ggcttgttgt gcagtttttg aagtataacc 1320
atggccactt tettegecca aaceteette ceeteecact eteteteeaa aacettegat 1380
accoatttcg cocctgcccc gaaagtcaac gtctttgtga acttcagggc gaggaggcac 1440
gttggggtgc gagtttcgaa cgcgctgatc gaaccagatg gagggaagct cgtggagctt 1500
gtggtgacgg attttgagag ggatttgaag aagggtgagg ctctttcgtt gccgaggatc 1560
aagctctcaa ggattgacct tgagtgggtc catgtcctca gcgaaggatg ggccacaccc 1620
ctgaaaggct tcatgagaga agccgagttc ctccaaacgc ttcatttcaa ctcgctccga 1680
ctcgatgatg ggtcggtcgt gaacatgtca gtgcccatcg tgctggctat tgatgatgcg 1740
```



